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Rhodora

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JOURNAL OF

THE NEW ENGLAND BOTANICAL CLUB

Vol. 28. February, 1926 No. 326.

THE RAGGED ORCHIS OF NEWFOUNDLAND.

M. L. Fernald.

Habenaria lacera (Michx.) R. Br., var. **terrae-novae**, n. var., minor 1.3–4.5 dm. alta; foliis 2–4(rarissime–6); racemo inter anthesin 3–10 cm. longo; floribus minoribus; labello 7–10 mm. longo plerumque minus dissecto.—Newfoundland: boggy meadows, Killigrew's, August 3, 1911 (flowers cream-white, rarely crimson), *Fernald & Wiegand*, no. 5216; marsh, Holyrood, August 22, 1894, *Robinson & Schrenk;* Barred Islands, August, 1903, *Sornborger;* open tundra along Junction Brook, July 12 and 13, 1911 (outside of sepals crimson-lake; lip crimson, changing to pink, its middle segment olivaceous; odor pungent), *Fernald, Wiegand & Bartram*, no. 5214; tundra at head of Mary Ann Lake, July 12, 1911 (flowers creamy white, delicately fragrant), *Fernald, Wiegand & Bartram*, no. 5215; peaty barrens among the gneiss hills back of Port aux Basques, July 21, 1924 (flowers greenish-white, with delicious fragrance like that of *Convallaria*), *Fernald, Long & Dunbar*, no. 26,540 (type in Gray Herb.).

The Newfoundland plant has been distributed sometimes as *H. lacera*, sometimes as *H. Andrewsii* White. The latter identification was made through the fact that in color the flowers are often a blend or a mixture of the colors of *H. lacera* and *H. psycodes* of which *H. Andrewsii* is a hybrid, and from the fact that in its cutting the lip of the Newfoundland plant closely simulates that of the latter plant. In Newfoundland typical *H. lacera* is quite unknown and *H. psycodes* is a plant of the rich aluvium of streams or of calcareous meadows, *H. lacera*, var. *terrae-novae* being a characteristic plant of the acid tundra and barrens, there often associated with *H. blephariglottis*.

The contrasts between the Newfoundland variety and typical *H. lacera* of more southern regions are indicated below.

H. lacera (typical): 0.2–8 dm. high, with 4–9 leaves: raceme during anthesis 0.5–3 dm. long: flowers smoky- or greenish-yellow, rarely whitish: lip 1–1.5 cm. long; its 3 lobes dissected into long capillary segments.

Var. TERRAE-NOVAE: 1.3–4.5 dm. high, with 2–4 (very rarely –6) leaves: raceme during anthesis only 3–10 cm. long: flowers variously colored, from cream-white to crimson: lip 7–10 mm. long; its lobes much less deeply dissected.

Some material from Cape Breton is transitional and it is possible that such specimens have given rise to the report from Cape Breton of *Habenaria leucophaea* (Nutt.) Gray.

GRAY HERBARIUM.

POLYGONUM HYDROPIPEROIDES AND P. OPELOUSANUM

E. E. STANFORD.

(*Continued from page 17.*)

The present paper proposes under *P. hydropiperoides* four new varieties, one apparently rather widespread throughout Florida, one found in southern California, and two others, represented by a single specimen each, from Sanibel Island, Florida, and from Oklahoma. The latter is stated by the collector's label to be "common"; as to the one from Sanibel Island no such information is available, but it appears to be fully fertile and to possess normal pollen. A number of specimens of variant material have been withheld from publication on account of the suspicion of hybridism engendered by an unusually large proportion of defective pollen, apparent infertility of achenes, too large a proportion of open-type flowers and apparent blending with other species. It is highly improbable that varieties recognized in this paper exhaust the list of admissible geographic varieties. Among possible fields for future geographic research, the southern seaboard states below Virginia and those of the lower Mississippi basin, which are not particularly well represented in the material at hand, suggest attractive possibilities. The species *P. hydropiperoides* would seem to be of unusual interest to students of variation.

The name *Polygonum opelousanum*, without description, was published by Riddell in the New Orleans Medical and Surgical Journal in 1852, and validated as a name by description by Small in 1892. A specimen from Riddell, with a manuscript description which appears never to have been published, is in the Gray Herbarium. Small, in publishing the species, stated: "The species here proposed is most closely related to *P. hydropiperoides*, from which

it differs by its smaller size, more slender habit, and the conspicuously setose bracts [ocreolae]."[1]

In the 7th edition of Gray's Manual, *P. opelousanum* was treated as synonymous with *P. hydropiperoides,* and in 1911 Stone treated it as *P. hydropiperoides opelousanum.*[2] The similarities between *P. opelousanum* and the variable *P. hydropiperoides* are indeed considerable, and there is room for divergence of view as to the systematic rank of the former. Besides the differences mentioned by Small, the plant appears to become an annual in its northward range; the panicles are shorter and more closely flowered, with the flowers and fruits borne on somewhat divergent pedicels, and, in particular, the calyx is little accrescent in fruit, becoming somewhat rhomboid in aspect, closely appressed to the achene, which is usually somewhat shorter in proportion than is that of *P. hydropiperoides.* The apex of the achene is usually slightly exserted, while that of *P. hydropiperoides* is typically included within the rather elongate calyx. For these reasons the present writer is inclined to rank *P. opelousanum* as a species rather than as a variant of *P. hydropiperoides,* recognizing, of course, a close affinity between the two plants.

The calyx of both *P. hydropiperoides* and *P. opelousanum* is usually described as non-glandular, and under the scrutiny of the usual hand-lens no glands are apparent. A compound microscope reveals, especially toward the base of the calyx, small and rather rudimentary glands within the tissues, which resemble, on a much less elaborate scale, the glands of *P. punctatum.* A variant of *P. opelousanum,* described in this paper from certain localities in Massachusetts and Rhode Island, presents a greenish calyx with plainly evident glands. It is in some respects a form intermediate between *P. opelousanum* and *P. punctatum.*

Key to the Varieties of Polygonum hydropiperoides and P. opelousanum.

Plants perennial (some annual in their northward range): stems upright or decumbent below, glabrous or minutely strigose, never with glandular hairs; leaves mostly lanceolate to lance-linear: ocreae strigose and ciliate: panicles erect: flowers mostly purplish, less commonly whitish or greenish: achenes shining and save in two varieties trigonous, in these both trigonous and lenticular.

[1] Small, Bull. Torr. Bot. Cl. xix. 354 (1892).
[2] Stone, Pl. So. N. J. 422 (1911).

a. Fruiting calyx elongate-ovoid, mostly completely investing the achene *b.*
b. Achenes all trigonous *c.*
c. Leaves lanceolate *d.*
d. Leaves mostly 10–15 cm. long *e.*
e. Panicles slender; fascicles not crowded: peduncles mostly simple *f.*
f. Margins of ocreolae bristly-ciliate *g.*
g. Marginal bristles mostly less than 1 mm. long: pedicels not strongly exserted.
Stem not strigose.....1. *P. hydropiperoides.*
Stem minutely strigose
1a. *P. hydropiperoides*, forma *strigosum.*
g. Marginal bristles mostly more than 1 mm. long: pedicels strongly exserted
1f. *P. hydropiperoides*, var. *Bushianum.*
f. Margins of ocreolae mostly naked and membranous.....1b. *P. hydropiperoides*, var. *psilostachyum.*
e. Panicles rather dense; fascicles crowded: peduncles digitately branched..1c. *P. hydropiperoides*, var. *digitatum.*
d. Leaves rarely more than 5–6 cm. long
1d. *P. hydropiperoides*, var. *macerum.*
c. Leaves ovate or elliptic..1e. *P. hydropiperoides*, var. *sanibelense.*
b. Achenes both lenticular and trigonous
h. Leaves herbaceous, strigose but not harsh
1h. *P. hydropiperoides*, var. *persicarioides.*
h. Leaves subcoriaceous, densely and harshly strigose, especially on the midrib and margin
1g. *P. hydropiperoides*, var. *asperifolium.*
a. Fruiting calyx rhomboid; apex of achene exserted; leaves narrow-lanceolate
i. Calyx not evidently glandular, mostly purplish or whitish
2. *P. opelousanum.*
i. Calyx glandular, greenish.....2a. *P. opelousanum*, var. *adenocalyx.*

1. POLYGONUM HYDROPIPEROIDES Michx. Fl. Bor.-Am. i. 239 (1803). Perennial: stem 3–12 dm. high, slender, upright or more or less decumbent or rooting at the nodes of the woody base, glabrous or barely strigillose, slightly glaucous, greenish or frequently reddened: nodes slightly swollen: internodes 3–4 cm. long: leaves lanceolate, the upper often falcate, 1–1.5 cm. wide, 7–15 cm. long, herbaceous, above usually glabrous, with minute appressed bristles on the midvein or minutely scabrous with appressed hairs, below paler and faintly roughened with internal glands, long-cuneate at base, attenuate to an acute or sometimes abruptly blunt apex, entire, with minute appressed bristles: ocreae 1–1.5 cm. long, scarious-membranous, close-cylindric above and becoming inflated at the bases and loose below, truncate, appressed strigose; margin with bristles 2–4 mm. long: inflorescence erect: the panicles 3–6 cm. long, sometimes geminate; fascicles few-flowered and not crowded: peduncles slender, glabrous or with scattering minute appressed bristles: ocreolae 3 mm. long, oblique, obliquely truncate, greenish or often purplish, glabrous below or rarely with minute appressed bristles; the margin fringed with rather stiff bristles 0.5–1 mm. long: pedicels 2.5–3.5 mm. long,

somewhat exserted: flowers perfect, or with either set of essential organs more or less reduced and in extreme types becoming nonfunctional; the staminate type of flowers opening widely and falling without noticeable accrescence of calyx or fertilization; the pistillate type usually fertilized cleistogamously before opening except when the stamens produce no functional pollen; fertilized flowers with accrescent calyx inclosing the fruit: calyx 1.7–2.2 mm. wide, 2.5–3 mm. long, smaller in sterile flowers, purplish or pinkish, sometimes greenish below, not evidently glandular, 5-parted to below the middle, the lobes rounded; in fruit accrescent, closed, elongate-ovoid, usually entirely enclosing the fruit: stamens 8, included: filaments in the staminate type 1.5–2 mm. long, the anthers well developed and full of pollen; in pistillate types filaments shorter and the anthers reduced in various degrees, sometimes with complete absence of pollen: style 1 mm. long, 3-cleft nearly to the base; stigmas capitate; style-branches recurved in fruit, rarely slightly exserted (style rarely 4-cleft through division of one of the usual segments, with the production of a 4-angled achene): achene 2 mm. wide, 2.5–3 mm. long, trigonous, rounded at base, usually much concaved on the sides, sharp-angled, brown to nearly black, shining, included or the style-branches slightly exserted.—*P. hydropiperoides* Meisner in Mart. Fl. Bras. v. pt. 1: 16 (1855) and in DC. Prodr. xiv. 103 (1856); Gray, Man. 387 (1848); Darlington, Fl. Cestr. ed. 3: 247 (1853); Chapman, Fl. S. States, 389 (1860); Small, Monog, N. A. Polyg. 80 (1895); not of Pursh, Fl. Amer. Sept. 270 (1814). *P. mite* Persoon, Syn. Pl. i. 440 (1805); Pursh, Fl. Am. Sept. i. 270 (1814); Elliott, Sketch. i. 456 (1817); Eaton, Man. ed. 2: 371 (1818); Sprengel, Syst. ii. 253 (1825); Meisner, Monog. Gen. Polyg. Prodr. 75 (1826); Darby, Man. Bot. So. States 298 (1841); not Schrank, Bayr. Fl. i. 668 (1789). *P. barbatum*, Barton, Comp. Fl. Phila. i. 188 (1818); not L. Sp. Pl. 362 (1753). *Persicaria hydropiperoides* Small. Fl. Se. U. S. 378 (1903); Britton & Brown, Ill. Fl. ed. 2, i. 669 (1913).—Swamps, wet sand, peat, and margins of bodies of water, Nova Scotia to southern Quebec and Ontario, south to Florida and Texas. Brazil acc. to Meisner. Reported from a considerably wider range on this continent, but material seen outside these limits not typical. The following specimens selected from a large collection are referred here. Quebec: Lac à la Truite, Megantic Co., *Victorin*, no. 11,287. Nova Scotia: wet peat bordering Boot Lake, Annapolis Co., *Fernald & Long*, no. 23,811; rocky swale bordering Dominick Lake east of Springhaven, Yarmouth Co., *Fernald & Long*, no. 23,810; peaty and cobbly beach of large lake north of Saller Lake, Kemptville, Yarmouth Co., *Fernald & Linder*, no. 21,092; wet peaty and sandy margin of Jones Lake, Roseway River, *Fernald & Long*, no. 23,808. Maine: shallow water, Orono, Sept. 8, 1890, *Fernald*. New Hampshire: shallow water, Contoocook River, East Jaffrey, *Robinson*, no. 569. Vermont: West Rutland, Sept. 19, 1897, *W. W. Eggleston*. Massachu-

setts: Essex Co. (from Herb. *Oakes.*); pond, East Nantucket, July 14, 1884, *J. R. Churchill.* Rhode Island: West Providence, July, 1844, *Geo. Thurber;* peaty margins of small ponds between Pilot Hill and South East Point, Block Island, *Fernald et al,* no. 9142. Connecticut: Hartford, Aug. 20, 1900, *A. W. Driggs.* New York: peaty margins of Black Creek, Alexandria, Jefferson Co., *Fernald et al,* no. 14,272; edge of Tioughnioga R., Cortland, *E. J. Palmer,* no. 416. District of Columbia: river flats, Sept., 1896, *E. S. Steele.* West Virginia: Tygart Valley river above Huttonsville, Randolph Co., *Greenman,* no. 355. Virginia: Franklin, Southhampton Co., *Heller,* no. 1151; sphagnum swamp southeast of Ewell, *Grimes,* no. 3902. Florida: around ponds, Myers, Lee Co., *Hitchcock,* no. 305: low wet places, Duval Co., *Curtiss,* no. 2402. Indiana: bog, Gibson, *Lansing,* no. 2827; ditch, Roby, *Lansing,* no. 2673. Kentucky: Clear Creek, Bell Co., *Kearney,* no. 410. Illinois: Swan Lake, Calhoun Co., *Metcalf,* no. 1099. Texas: Sept., 1870, *Lindheimer,* no. 1116.

1*a*. Forma **strigosum** (Small), comb. nov. Stem sparingly strigose; leaves and ocreolae also more strigose than in the type: foliage variable, often shorter in proportion than in the type: flowers white or roseate.—*P. hydropiperoides* var. *strigosum* Small, Bull. Torr. Bot. Cl. xix. 355 (1892); Robinson & Fernald in Gray Man. ed. 7: 362 (1907).—*P. hydropiperoides Macouni* Small, Monog. N. A. Polyg. 81 (1895); Britton & Brown, Ill. Fl. i. 560 (1896).—Apparently of no very definite range. The following show the character. Quebec: wet places, Gatineau River, Aug. 23, 1884, *J. Macoun.* New Hampshire: West Epping, Sept., 1889, *A. A. Eaton.* Vermont: Proctor, *Eggleston,* no. 1556. Massachusetts: Nantucket, Aug., 1886, *B. Woodbridge.* Pennsylvania: Long Pond, *Heller & Hallbach,* no. 662.

1*b*. Var. psilostachyum St. John, Proc. Bost. Soc. Nat. Hist. xxxvi. 71 (1921). Leaves lanceolate, 0.8 cm. wide, 4–8 cm. long, glabrescent or glabrous, nearly eciliate: ocreolae glabrous, nearly or quite eciliate rather more scarious and widely flaring than in the type.—Appearing a well-marked variety, with pollen 25–50% defective. Type from Nova Scotia cited in original article. The following agree in habit and leaf-outline, but have ciliate ocreolae and leaves with normal margin and surface characters. Oregon: University Park, Multnomah Co., *Sheldon,* no. 11,306 (as *P. punctatum);* marshes about Portland, *Henderson,* no. 846. Washington: low bottom lands of the Columbia, W. Klickitat Co., *Suksdorf,* no. 668.

1*c*. Var. digitatum Fernald, Rhodora xxiii. 260 (1921). Leaves linear-lanceolate, long-attenuate, 1–1.5 cm. wide and 13–20 cm. long: inflorescence digitately branched: the fascicles more crowded than in the type: flowers larger and more widely opening.—Types cited in original article. Known only from Nova Scotia.

1*d*. Var. **macerum,** var. nov., gracillimum 5–6 dm. altum; foliis

lanceolatis 1 cm. latis 5–6 cm. longis: inflorescentiis sparsis plerumque erectis; calycibus purpurascentibus fructiferis longe rhomboideis achenio arcte adpressis.—Wet lands, Florida. The following is chosen as the type. FLORIDA: in water-edge in a swamp near St. Petersburg, *Mrs. Chas. C. Deam*, no. 2,987 (as *Persicaria hydropiperoides*) TYPE in Gray Herb. These also are characteristic: near Port Orange, *Mrs. Chas. C. Deam*, no. 1684; vicinity of Eustis, Lake Co., *Nash*, no. 1087; swamp, Brevard Co., Okeechobee region, *Fredholm*, no. 5891.

1*e*. Var. **sanibelense**, var. nov., caulibus crassis internodiis 1–2.5 cm. longis; foliis ovato-lanceolatis vel ellipticis obtusis basi rotundatis 2 cm. latis 6 cm. longis glabris margine venisque exceptis; ocreolis breviter turbinatis coarctatis imbricatis infra glabris marginibus ciliatis ciliis divergentibus.—FLORIDA: Sanibel Island, May 17, 1901, *S. M. Tracy*, no. 7547, TYPE in Gray Herb.

1*f*. Var. **Bushianum**, var. nov., foliis lanceolatis; ocreis valde strigosis ciliis vaginas subaequantibus; ochreolis arctis supra turbinatis ciliis 1–1.5 mm. longis; pedicellis 3–3.5 mm. longis valde exsertis: calyce fructifero rhomboideo achenio arcte adpresso.—OKLAHOMA: Sapulpa, Sept. 25, 1895, *Bush*, no. 509, TYPE in Gray Herb. Distributed as *Polygonum* sp. "Common."

1*g*. Var. **asperifolium**, var. nov., caulibus crassis 0.5–0.9 m. altis: foliis coriaceis strigoso-scabris lanceolato-attenuatis; inflorescentiis subdigitatis; paniculis subdensis; pedunculis plerumque strigosis; acheniis lenticularibus vel trigonis.—CALIFORNIA: East Los Angeles, 1904, *J. C. Nevin*, no. 2, TYPE in Gray Herb. The following are also characteristic: Wilson's Lake, near Pasadena, 1904, *Nevin*, no. 1; vicinity of San Bernardino, alt. 1000–1500 feet, *Parish*, no. 3797.

1*h*. Var. **persicarioides** (HBK.), comb. nov. Leaves lanceolate, minutely strigose or appressed-bristly: ocreolae often glandular-roughened, slenderly ciliate; the lower often strigose below: calyx sometimes 4-cleft (usually 5-cleft): stamens usually 6–7: achene lenticular or trigonous.—*P. persicarioides* HBK., Nov. Gen. et Sp. ii. 179 (1818): Cham. & Schl. Linnaea, iii. 44 (1828); Meisner in Mart. Fl. Bras. v. pt. 1: 18 (1855) and in DC. Prodr. xiv. 117 (1856); Small, Monog. N. A. Polyg. 68 (1895). *Persicaria persicarioides* (HBK.) Small, Fl. Se. U. S. 378 (1903).—Nebraska, New Mexico (according to Small), Texas, Mexico, Central and South America, mostly in wet places. The following are typical. TEXAS: growing in small pond, near Trinity River, Madison Co., *R. A. Dixon*, no. 423; *Berlandier*, no. 912 in Hb. Mo. Bot. Gard. MEXICO: Hacienda San Miguel, near Batopilas, Chihuahua, *E. Palmer*, no. 137; Hacienda San Bartolo, Tecoman, Colima, Aug. 1, 1905, *P. Goldsmith* (as *P. hydropiperoides*); San José del Cabo, *A. W. Anthony*, no. 340.

2. POLYGONUM OPELOUSANUM Riddell in Small, Bull. Torr. Bot. Club, xix. 354 (1892). Perennial, or annual northward: stem 3–9 dm. high, slender, usually erect and freely branching from the woody

base, glabrous, green; nodes somewhat swollen; internodes 3–6 cm. long: leaves narrow-lanceolate or somewhat falcate above, 0.5–1 cm. wide, 3–12 cm. long, glabrous or with minute appressed bristles especially on the veins, glandular-roughened below, attenuate at both ends; margin entire, slightly revolute, with minute appressed bristles: ocreae 1–1.2 cm. long, cylindrical, brown, scarious-membranous, slightly inflated at the base, loose below and at the branching nodes, strigose; the margin with bristles 2–4 mm. long: inflorescence erect or slightly drooping on very slender glabrous peduncles; panicles 1.5–4 cm. long, single, geminate or rarely digitate; fascicles few-flowered, rather close: ocreolae 1.5–2 mm. long, narrow-funnelform, oblique, obliquely truncate, glabrous below and usually green, in the fruiting stage scarcely overlapping, fringed with spreading bristles 1–2 mm. long: pedicels 1–2.5 mm. long, slightly surpassing the ocreolae: flowers perfect, or with either stamens or style reduced and non-functional as in *P. hydropiperoides:* calyx 1.5–2 mm. long, white or pinkish, 5-parted to below the middle, with rounded not evidently glandular lobes, scarcely accrescent in fruit; then closely appressed to the achene: stamens 8, included: style 1 mm. long, 3-cleft to near the base: its branches in fruit mostly reflexed: achenes 1.2–2 mm. wide, 1.5–2 mm. long, sharply trigonous, rounded or sometimes somewhat acute at base, concaved on the sides, with the recurved stigmas usually exserted.—*P. opelousanum* Riddell, New Orleans Med. Surg. Jour. viii. 760 (1852), acc. to Small; Small, l. c. (1892) and Monog. N. A. Polyg. 78 (1895). *P. hydropiperoides opelousanum* (Small) W. Stone, Pl. So. N. J. 422 (1911). *Persicaria opelousana* (Riddell) Small, Fl. Se. U. S. 378 (1903).—Massachusetts, New Jersey, Virginia to Louisiana and Mexico, inland along the Mississippi basin to Missouri and Illinois, in wet sand or peat. The following are typical. Massachusetts: Jamaica Plain, *C. E. Faxon.* Florida: ditch, Duval Co., *Fredholm,* no. 5273; Braidentown, *Tracy,* no. 7133. Illinois: Fox Bottom near mud bridge, Aug. 26, 1919, *R. Ridgway,* no. 784. Missouri: swampy places, Newton Co., uncommon, *Bush,* no. 321 (as *P. acre* var. *leptostachyum);* Pleasant Grove, *Bush,* no. 278. Mississippi: Biloxi, Harrison Co., *Pollard,* no. 1046. Louisiana: *Riddell,* no. 1431 (accompanied by a MS. description). Texas: near Texarkana, Bowie Co., *Heller,* no. 4149. Mexico: Orizaba, *Botteri,* no. 1163; near Jalapa, Vera Cruz, *Pringle,* no. 8143. Many of the preceding were distributed as *P. hydropiperoides.*

2*a*. Var. **adenocalyx**, var. nov. calycibus viridibus glandulosis. Calyx resembling that of *P. punctatum,* but the glands whitish and less evident and plentiful.—Massachusetts, Rhode Island and Connecticut. Massachusetts: wet peaty shores and hollows, Half-Way Pond, Barnstable, Sept. 4, 1918, *Fernald & Long,* no. 16,766 (as *P. hydropiperoides* var. *opelousanum*), type in Gray Herb.; bare wet sand by Cole's Pond, East Dennis, Barnstable Co.,

Fernald & Long, no. 18,403; wet sandy beach of Long Pond, Brewster, *Fernald & Long*, no. 16,763; Sharon, *S. F. Poole*, no. 292 (as *P. hydropiperoides*); brook near Church St., Winchester, Aug. 15, 1853, *Wm. Boott* (as *P. acre*). RHODE ISLAND: peaty margins of small ponds between Pilot Hill and South East Point, Block Island, *Fernald et al.*, no. 9413; peaty margin of pond near Clay Head, Block Island, *Fernald et al*, no. 9415 (as *P. hydropiperoides*). CONNECTICUT: wet roadside, Stratford, Sept. 9, 1895, *E. H. Eames* (as *P. acre*, with which it is mixed).

WESTERN RESERVE UNIVERSITY.

SOLIDAGO RIGIDA L.

KENNETH K. MACKENZIE.

IN the Linnaean herbarium named *Solidago rigida* is a specimen of the species so currently treated in our manuals (Gray Proc. Am. Acad. **17**: 179. 1882). Unfortunately, however, the Linnaean species is entirely based upon citations from older authors. No word of original description is given, and in consequence the specimen in the herbarium cannot be considered in determining the proper application of the name, although it was in the Linnaean herbarium when the species was published (Jackson Proc. Linn. Soc. (1912) Appendix 139).

The original description is short and reads as follows:

Solidago rigida L.

"10. Solidago foliis caulinis ovatis scabris, ramis alternis fastigiatis, corymbis terminalibus. *Hort. cliff.* 410. *Roy. lugdb.* 162.

"Virga aurea novae angliae, lato rigidoque folio. *Herm. par.* 243 *t.* 243.

"*Habitat in* Pensylvania."

Linnaeus Sp. Pl. 880. 1753.

The first notice Linnaeus gave of this plant was in 1737, when in Hortus Cliffortianus he wrote:

"6. Solidago foliis caulinis ovatis, ramis alternis fastigiatis, corymbis terminatricibus.

"Virga aurea novae angliae, lato rigidoque folio. *Herm. parad.* 243. *t.* 243. *Tournef. inst.* 485. *Vaill. act.* 1720, *p.* 397 (should be 307).

"Doria americana, lato rigidoque folio. *Boerh lugdb.* 1. *p.* 98.

"*Crescit in* nova York, *Americae septentrionalis*, Pensylvaniae."

Linnaeus Hort. Cliff. 410. 1737.

In 1740 in Royen's work (largely the work of Linnaeus) he wrote:

"5. Solidago foliis caulinis ovatis, ramis alternis fastigiatis, corymbis terminatricibus. *Linn. h. Cliff.* 410.

"Doria americana, lato rigido folio. *Boerh.* lugdb. 1. p. 98.

"Virga aurea novae angliae, lato rigidoque folio. *Herm. par.* 243 t. 243."

Royen Fl. Leyd. Prodr. 162. 1740.

The citations to Tournefort, Vaillant and Boerhaave referred to, are as follows:

"Virga aurea novae Angliae lato rigidoque folio Par. Bat. Virga aurea ex nova York, foliis symphiti majoris, hirsutis Schol. Bot."

Tournefort Inst. (Ed. 3) 485. 1719.

"12. Virga aurea novae angliae, lato, rigido folio. Par. Bat. 243. & I. R. Herb. 485."

Vaillant in Mem. Roy. Acad. Sc. 307. 1720.

"5. Doria; Americana: lato, rigido folio. *Virga aurea, novae Angliae, lato, rigidoque folia* Par. *Bat. M. H. 3. 125. Virga aurea, ex Nova York, foliis symphyti majoris,* hirsutis. Sc. Bot. Par. t. H."

Boerhaave Ind. alter Pl. Lugd.-Batav. 98. 1720.

It will be noted that all of these references go back to the plate and description of Hermann Paradisus Batavus 243, pl. 243. 1698. This is a fine piece of work and the plate referred to is an excellent one. It is, however, not at all the plant currently known as *Solidago rigida*, but it is *Solidago patula* Muhl. The description is long and carefully drawn, but it will be here sufficient to quote the description of the leaves:

"ex qua prodeunt *folia* plurima, pedalia, palmum lata, in mucronem desinentia, subviridia, tactu aspera, rigida, pluribus nervis inscripta, subinde in margine denticellis incisa, pediculis dodrantalibus insidentia. *Caules* gerit multiplices, firmos, rotundos, striatos, crassos, quos ambiunt *folia* caeteris minora magisque acuminata, basi caulem quasi amplectentia."

The only scientists who seem to have consulted this plate at all were Torrey & Gray (Fl. N. Am. 2^2: 209. 1842) who characterized it as "poor" under the plant treated by them as *Solidago rigida* L.

It is interesting to note that Torrey & Gray (l.c. 213) in describing *Solidago patula* Muhl. say, "This species is readily distinguished by the shagreen-like roughness of the upper surface of the ample some-

what coriaceous leaves" while the older author Hermann writing in 1698 described them as "tactu aspera, rigida."

While the change required may be distasteful it is quite evident that we must give to the plant which has been called *Solidago patula* Muhl. the name *Solidago rigida* L.

Maplewood, New Jersey.

POGONIA AFFINIS IN MAINE.

Edwin H. Eames.

Specimens of *Pogonia affinis* Aust. have been distributed with the following data: "Norway, Oxford County, Maine, 20 Aug. 1923. Dr. E. H. Eames and Dr. C. C. Godfrey."

This appears to be the first collection in the State and is about 70 miles northeast of the only station recorded[1] from New Hampshire, near Holderness, where three specimens were found. It lacks a few miles of reaching the same latitude as the most northerly station recorded, at Burlington, Vermont, where apparently one specimen was found.[2]

This Maine colony was so extraordinary in some ways as to merit detailed record. About 35 plants were found within an interswamp area of approximately half an acre of fairly well drained, partly very open woodland of beech and red maple, merging upon one side into a scattering growth of Arbor Vitae—common in the general locality—which at one point, within a few meters of the nearest *Pogonia*, became a swamp characteristic of the species, where were many well-fruited specimens of *Microstylis monophyllos* (L.) Lindl.

The area was largely free from underbrush or vegetation of any kind. The soil was sandy loam or in places clay-loam, topped with a moderate but variable layer of leaf-mold and nowhere more than a meter above the adjacent swamps, nearly level and barely moist.

The plants generally were widely scattered but at the highest point, a mound about the base of a tall badly decayed beech trunk well perforated by woodpeckers, was a combination offering unusually favorable organic soil conditions as shown in its support of a very interesting growth of the Pogonias—a cluster of eleven stems within

[1] Rhodora, xix: 235. 1917.
[2] Torreya, ii: 143. 1902.

an area no larger than one's palm, with two outlying stems about 18 and 24 cm. distant. All of these were apparently then or originally connected by subsurface roots. Eight of these bore fruit—none mature although the capsules when fresh were of mature size—mostly in pairs, with some woody-fibered remnants of fruiting stems of the preceding year. It may be noted that such old stems, still connected or lying in such position as to show origin, sometimes show but one capsule on a present year's two-capsuled stem and vice-versa. Also a rhizome with three stems may show but one for the preceding year or otherwise, erratically.

The height from roots to leaves, as measured in the herbarium, is 30 and 32 cm. for two fertile and 36 cm. for one sterile stem from the same rhizome. Most of the others were little less.

The leaves measured up to 9.8 × 4.6 cm., usually with much vari ation in every verticil; the combined peduncle and capsule from 4.1 to 4.8 cm. in length, of which the capsular portion varies from 2.8 to 3.4 cm.

The roots in this clump were numerous, about 70, all rather erratic, rarely branching, and mostly of remarkable length, varying from several to 18 cm. for those with apex complete. This great mass of roots may be accounted for by the special conditions which included much greater depth of organic matter and the fact that many roots penetrated the underlying soil of sandy clay. Generally the roots in this species are without branches but when these do appear they may be very sparingly disposed as strictly lateral, opposite or forked to appear nearly opposite, or apparently dichotomous.

Vegetative reproduction occurs to a very limited extent and originates in nodes formed upon more or less horizontal roots. This process seems to be slower and less successful than in *P. verticillata* and generally is a very inefficient factor in extending a colony. In both species several years elapse between forming nodes and self-perpetuating plants, with more added for the attainment of mature characters.

These nodes vary from 0.3 to 20 cm. from the parent stem—in one case 0.8 (had borne a stem a year or two earlier as shown by shreds of it), 2.4 and 5.2 cm. distant, the last with a close series of roots: another 0.3, 2.5 (bore a stem at least three years earlier), 7.8 and 19 cm. distant with a close knot of roots from the latter.

But united *plants* seem to be rarely collected because of their scarcity, depth in the soil or difficulties of an extraneous nature.

The true rhizome, as here interpreted, from which the annual stems arise, is usually perpendicular or oblique and has yearly accretions of only 0.2 to 0.3 cm. from a bud or buds well formed before the dormant condition and sometimes well before fruit is mature.

The bud, in unusually robust specimens, may become 1.5 cm. long in its season of origin.

The rhizome is rarely 4 cm. long in specimens observed and such may display distinctly several shredded remnants of earlier stems with indications of as many more.

Approximately one-third of the plants in this colony were sterile at the time although some of these may have produced flowers. Sterile plants do occur in about that proportion as noted at flowering time in a colony at Stratford, Connecticut, found by Charles K. Averill in May, 1887. Observations there during a number of years have shown years when no plants appeared and others with varying numbers to about eight, the latter when the colony had been least disturbed.

Two-flowered stems are frequent and rarely two such stems closely associated on the same rhizome, etc.

Most of the data obtained at the Stratford station fairly coincide with the recorded observations of E. J. Grimes in Virginia.[1]

The flowers in their early virile state seem better described as pale green with enough of bloom about the parts to make difficult a color name. The really "yellowish" green described in literature appears only as the flowers age and may become pronounced in their final stage. In Stratford the period of flowering always occurred between mid-May and mid-June, scarcely three weeks in any season. The fruit there matured in October but was scarce.

The bloom covering the plant varies in intensity being more pronounced where exposure to sunlight is greatest. There is something about this color together with the surroundings that about as effectually conceal the plant as anything in its habitat, even when standing alone.

In *P. verticillata* this bloom is much less apparent but there is much of the same color effect and it also is paler in strong light. In this species, while somewhat similar to the other, the root system is greatly extended and usually nearer the surface. At times there is little difficulty in obtaining many meters of a single root, usually showing nodes or branches quite distant, commonly half a meter or so.

[1] Rhodora xxiii: 195–7 and xxiv: 149.

It may readily be observed that the branching of such roots is a prolific source of new stems. Entire colonies, sometimes of great extent, seem to owe their existence to this habit. Upon one old rhizome of a sterile plant there are shreds representing eight stems covering as many years, all within a space of 2 cm., together with about a dozen long roots.

A feature of much import to the field student is the intimate association of both species of *Isotria* with beech trees. This was remarked nearly 40 years ago in the Stratford station for *P. affinis*, where the plants grew only under a beech, also at another station in the same town which yielded a solitary fruiting plant.

Later observations have shown the same environment to be very constant with *P. verticillata*, the few exceptions being, it would seem, more apparent than real, due to disturbed conditions. Hemlock often occurs in these areas and, with beech, is generally noted in the literature as a component of the woodland, but the former seems to be merely incidental.

Some very impressive instances might be cited, especially a wide-spreading very low-branched beech bordering a grassy cartpath in a woodland made up chiefly of chestnut. The ground area immediately below these branches was actually a solid mosaic of *P. verticillata* foliage which stopped almost abruptly at its outer borders—not another specimen anywhere in the locality. Commonly, however, conditions are such that the humus nearby contains decomposed beech leaves in sufficient amount to meet the needs, especially in colonies long established. With the beech habitat in mind it has always been easy to find these Pogonias if they were to be found at all and it was only because of this that *P. affinis* was found in Maine.

There is no other clue, as both species occur in dry as well as wet habitats, and *P. verticillata* as well on hills as in low swampy places. The only accessory desiderata seem to be comparative or even absolute freedom from underbrush and even of other herbaceous vegetation, together with comparatively light shade. *Medeola* and *Arisaema triphyllum* are associates in certain instances and both make it much more difficult to find any Pogonias.

Bridgeport, Connecticut.

A NEW MAGNOLIA FROM WEST FLORIDA.

C. A. Weatherby

Magnolia Ashei, n. sp., *M. macrophyllae* valde affinis, differt tamen costis subtus plerumque subappresse pubescentibus, floribus minoribus, viventibus diametro 20–31 cm. (fide Ashe), petalis plerumque acutis vel acutiusculis, exterioribus 12–14.5 cm. longis 5–6.6 cm. latis, interioribus 10.5–13 cm. longis 3–5.5 cm. latis, carpellorum capitulis ad anthesin plerumque anguste ovoideis 2.4–2.7 cm. longis, stylis plerumque rectis, fructibus ovoideo-cylindraceis, 5–11 cm. longis diametro 3.5–5 cm., folliculorum valvarum appendicibus siccatis 1–2 mm. latis vel, ut videtur, paene obsoletis, intus sparse pubescentibus, seminibus 9–10 mm. longis.

Closely related to *M. macrophylla*, from which it differs in the usually subappressed pubescence of the midribs of the leaves beneath; the smaller flowers, according to Ashe 20–31 cm. in diameter when fresh; the usually acute or acutish petals, the outer 12–14.5 cm. long, 5–6.6 cm. wide, the inner 10.5–13 cm. long, 3–5.6 cm. wide; the head of carpels, usually narrowly ovoid and 2.4–2.7 cm. long at flowering time; the usually straight styles; the ovoid-cylindric fruit, 5–11 cm. long, 3.5–5 cm. in diameter; the narrow appendages of the follicle-valves, in dried material 1–2 mm. wide or apparently almost obsolete, sparsely pubescent within; and the smaller seeds, 9–10 mm. long.—In deep sandy soil near streams, associated with laurel oak, *Ilex opaca*, *Liquidambar*, *Cercis* and *Illicium*. Florida, Okaloosa County: tree 25 ft. high, or shrubby, Rogue Creek, April 26 and June 6, 1925, *Ashe*, (type in herb. Ashe), two sheets, same locality and dates in Herb. Gray, and others from same locality (coll. *E. R. McKee* and *Ashe*) in herb. Ashe; head of Rocky Creek, April 26 and Oct. 24, 1923, *Ashe*, and May 3, 1925, *G. B. Anchora*, all in herb. Ashe.

In *M. macrophylla* the pubescence of the under surface of the leaves, though variable, tends to be denser than in *M. Ashei*. That of the mid-rib beneath, also variable as to the length of the hairs, is spreading, and when the hairs are long often matted and lanate. The flowers average distinctly larger, according to Ashe's measurements of fresh material 33–43.5 cm. in diameter when fully expanded. The outer petals are, according to Ashe, 20–23 cm. when fresh, in the Gray Herbarium specimens 14–18 cm. long, 6.5–13 cm. wide, and with a broadly obtuse apex. The head of carpels at anthesis is broadly ovoid. The styles are commonly spreading or recurved near the apex. The head of fruit is broadly ovoid to subglobose, 6–11 cm. long, 4.5–9 cm. in diameter. The seeds are rarely as little as 10, usually 11–14 mm. long.

The follicles of the two species show, so far as can be made out from dried material, a structure not fully accounted for in current descriptions. The valves appear to be produced, for their whole length, into a pubescent appendage which extends out beyond the suture along which dehiscence takes place. In the fully mature and open follicle, these appendages appear as pubescent margins along the outer edges of the gaping valves, the cavity containing the seeds being quite glabrous within.

In *M. macrophylla* the appendages are thick and fleshy, and the apparent margin formed by them is 4–5 mm. wide: in *M. Ashei* they are much thinner and less developed, and the margin is 1–2 mm. wide, or, in the dried fruit, almost shrunken away.

According to Ashe's notes, *M. macrophylla* grows in drier situations, often in open woods well away from streams, with red oak and white hickory.

It will be noted that the differential characters of *M. Ashei* are for the most part of a rather comparative nature and, with the exception of the shape of the fruit and the structure of the follicle, not wholly constant in Mr. Ashe's fine series of specimens. Taken together, however, they constitute a fairly impressive body of evidence, which seems to justify the addition of *M. Ashei* to the list of local species of *Magnolia*, such as *M. pyramidata* and *M. cordata*.

Gray Herbarium.

Kate Furbish, Botanist.—An appreciative sketch of Kate Furbish, who is now in her ninety-second year, has been written by Louise H. Coburn[1] and will be wanted by all who know Miss Furbish or who have known of her tenacity to a life-long purpose. The appreciation is gracefully conferred and the pamphlet is notable as containing three features which in her earlier days Miss Furbish was very loth to make accessible, a statement of her age, an excellent photograph and several very successful photographic reproductions of her paintings of Maine plants. The author is Miss Louise H. Coburn, Skowhegan, Maine.—M. L. F.

Vol. 27, no. 324, including pages 201 to 224 and title page of volume 27, was issued 17 February, 1926.

Vol. 28, no. 325, including pages 1–20, was issued 17 February, 1926.

[1] Kate Furbish, Botanist.—An Appreciation by Louise H. Coburn. 1925.

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